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SCIENTIFIC VOICE TRAINING

By D. A. CLIPPINGER

The immediate effect of the laryngoscope was to throw the whole subject into almost hopeless confusion by the introduction of all sorts of errors of observation, each claiming to be founded on ocular proof, and believed in with corresponding obstinacy.—SIR MORELL MACKENZIE,
Hygiene of the Vocal Organs.

TO-DAY a larger number of people are studying singing than ever before. The impulse to sing is inborn and as old as the race. Kings and dynasties rise, fall, and are forgotten. Nations are born, live and die, but people still sing. War, pestilence and famine have been unable to stop it. It is a perpetual inheritance of mankind. It is the natural medium for the expression of the highest and best in human nature, and is one of the most potent factors in social development. There is an appeal in the human voice that is impossible to any other instrument of music. Nature has bestowed the gift of song, in varying degrees, upon practically the entire human race, and the desire to do everything well, which is a part of the mental equipment of every normal being, has called forth innumerable forms of procedure, known as vocal methods. All manner of fact, fancy, and vagary have been used as a peg upon which to hang a method. Some of these have vision and recognize man as a mental entity, and singing as the formation of mental concepts and habits of mind which automatically control the vocal mechanism, and when exercised result in beautiful tone and artistic singing. Others attempt to reduce the matter to a mathematical formula and bring all voices under its operation. This is known as the "scientific method."

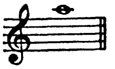
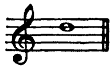
The word 'scientific' attached to a method has a considerable lure to both teacher and pupil. Science having gained the reputation of being exact, many have been led to believe that a scientific method of voice training eliminates altogether the element of uncertainty. What could be more alluring than a vocal method as exact as the multiplication table? Nothing. And so after the invention of the laryngoscope, when scientific methods innumerable sprang into being, there was an immediate rally to their standards.

An interesting feature of the scientific method is that it is always worked out in a physics laboratory, never in the studio where singers are trained. Now he who studies the voice in a laboratory quite naturally considers himself a scientific man, and all who read his book and make his discoveries and deductions the basis of their teaching believe they are teaching scientific voice production. It is a favorite and much overworked claim of the scientist that those who do not follow this method are ignorant of the voice and its use. The reverse of this is the truth. It is utterly futile, as many of us have proved by long experience, to attempt to solve a psychological problem by means of physiology. The scientist says: "How can one know anything about the voice until he has seen it. I have studied the voice in action, therefore I know." But the element of uncertainty in what he has seen makes his knowledge little more than speculative.

But suppose he is sure of what he has seen. Of what importance is it? He has seen a vocal organ in the act of producing tone under trying conditions, for one under the conditions necessary to the use of the laryngoscope is not at all likely to reach his own standard of tone production.

Scientists would have us believe that the action of the vocal mechanism is the same in all voices. This must be claimed or there would be no such thing as scientific tone production. Notwithstanding this assertion there is scarcely a point upon which they do not continually combat each other; further, the attempt to make all voices conform to one rule is a vocal vagary which has absolutely no foundation in fact.

Scientifically and artistically speaking, there is no such thing at present as a perfect voice, and there will be no such thing until man manifests a perfect mind. The best examples of vocal organ and tone production are not altogether perfect, and most of them are still a considerable distance from perfection. It is with these imperfect models that the scientific man is dealing and upon which he bases his deductions.

Be it right or wrong, singers do not all use the vocal mechanism in the same way. I have in mind two well known contraltos one of whom carried the chest register up to A, second space, and occasionally to B flat. The other carried her middle register to the bottom of the voice. Can the tenor who carries his chest voice up to A  be said to use his voice in the same way as one who begins his head voice at D ? An examination of a hundred voices selected at random would disclose many points of difference in the use of the mechanism. Doubtless this is responsible for the great diversity of opinion among scientists, for it must be said that so far there is little upon which they agree. Before absolute laws governing any organ or instrument can be formulated the nature of the instrument must be known. The scientific investigators have never come anywhere near an agreement as to what kind of an instrument man has in his throat. Some have reached the conclusion that it is a stringed instrument, others that it is a brass, or a single or double reed. Now these things are vital in establishing a scientific basis of procedure. Not knowing what the instrument is, it is not strange that we are not of one mind as to how it should be played upon.

If we are to know the science of voice production we must first know the mechanism and action of the vocal organ. This instrument, less than an inch and a half in length, produces tones covering a compass, in rare instances, of three octaves. How does it do it? According to the books, in a variety of ways.

A majority of those voice teachers who believe in registers recognize three adjustments, chest, middle, and upper, or chest, medium, and head, but Dr. Mackenzie claims that in examining four hundred female voices he found that in most cases the chest mechanism was used throughout. Mancini (1774) says there are instances in which there is but one register used throughout.

Garcia says there are three mechanisms—chest, falsetto, and head, and makes them common to both sexes.

Behnke divides the voice into five registers—lower and upper thick, lower and upper thin, and small.

Dr. Guilmette says that to hold that all of the tones of the voice depend on one mechanism or register is an acknowledgment of ignorance of vocal anatomy. He further declares that the vocal cords have nothing to do with tone—that it is produced by vibration of the mucous membrane of the trachea, larynx, pharynx, mouth; in fact, all of the mucous membrane of the upper half of the body.

All of these gentlemen, mark you, have the same facilities for study and observation of the voice.

When it comes to the falsetto voice, that scarehead to so many people who have no idea what it is, but are morally sure that it is immoral, ungodly, and at all times to be avoided, the scientists give their imaginations *carte blanche*. Dr. Mackenzie, who says there are but two mechanisms, the long and short reed, says the falsetto is produced by the short reed.

Lehfeldt and Müller hold that falsetto is produced by the vibration of the inner edges or mucous covering of the vocal cords, the body of the cords being relaxed.

Mr. Lunn affirms without hesitation that the true vocal cords are not involved in falsetto, that voice being produced by the false vocal cords.

Mantels says that in the falsetto register the vocal cords do not produce pitch, that the quality and mechanism are both that of the flute, that the vocal cords set the air in vibration and the different pitches are made by alterations in the length of the tube.

Davidson Palmer says that the falsetto is the remnant of the boy's voice which has deteriorated through lack of use, but which is the correct mechanism to be used *throughout* the tenor voice.

Mr. Chater argues along the same lines as Mr. Mantels, except that he places the instrument in the clarinet or oboe class. Others believe that the vocal cords act as the lips do in playing a brass instrument.

But the action of the vocal cords is but the first chapter in this alleged scientific controversy. The functions of the pharynx, the mouth, the nasal cavities, the entire structure of the head, in fact, are rich in uncertainties.

Some think the cavities of the pharynx and head are involved acoustically, that is, they act as resonators and enlarge, refine, and purify the tone; but one famous man says that the head has nothing whatever to do with it. Another gentleman of international reputation says the nose is the most important factor in singing. If your nasal cavities are right you can sing, otherwise you cannot.

And so this verbal rambling continues; so the search for mind in matter goes on with a seriousness and acerbity scarcely equalled in any other line of strife. There is nothing more certain to bewilder permanently a vocal student than to deluge him with pseudo-scientific twaddle about the voice. And this for the simple reason that he comes to learn to sing and not to be experimented upon by a physicist.

What is scientific voice production? Books without number have been written each with the clearly expressed intention of giving an exposition of the subject that the wayfaring man, the vocal student, may readily understand, but these inquirers invariably find themselves in a maze of conflicting human opinions from which they are unable to extract anything resembling a practical system.

We are told with much unction and warmth that science means to know. That it is knowledge of principles or causes, of ascertained truths or facts. That it deals with finalities and eliminates argument. A scientific voice teacher then must know something. What must he know? Books on scientific voice production usually begin with a picture of the larynx, each part of which is labeled with a Greek word sometimes longer that the thing itself. It then proceeds to tell the function of each muscle and cartilege and the part it plays in tone production. Now if this is scientific, and if science is exact knowledge, and this exact knowledge is the basis of scientific voice teaching, then every one who has a perfect knowledge of these facts about the voice, must, in the eternal and invariable nature of facts, be a perfect voice teacher, and every one of these perfect voice teachers must teach in exactly the same way and produce exactly the same results in every instance. There must be no failures. Does history support this argument? Emphatically the reverse.

There is a science of acoustics, and in this science one may learn all about tones, vibrating bodies, vibrating strings, vibrating cavities, simple, complex, and compound vibrations. Will this knowledge make him a scientific voice teacher? While it is perfectly proper and right for him to know this, nevertheless when he has learned it all he has not even begun to prepare for voice teaching. There is no record of a great voice teacher having been trained in a physics laboratory.

It is possible to analyze a tone and learn how a fundamental and upper partials are combined and how these combinations affect tone quality. Does this equip one for scientific voice teaching? This knowledge may all be gained from Helmholtz or the various handbooks on acoustics. Has any one the hardihood to assert that it prepares him for the responsible work of training voices? One may know all of this and still be as ignorant of voice training as a Hottentot is of Calvinism.

Further, who shall decide which particular combination of fundamental and upper partials constitutes the perfect singing tone? If a tone is sung and we say there is a perfect tone, all it proves is that it corresponds to our mental concept of tone. It satisfies our ear, which is another term for our taste.

Can a tone be disagreeable and still be scientifically produced? One combination of fundamental and overtones is, strictly speaking, just as scientific as any other combination. The flute tone with its two overtones is just as scientific as the string tone with its six or eight. A tone is pleasant or unpleasant according as it corresponds to a mental demand. Even the most hardened scientist would not call a tone which offends his ear scientific. Therefore, he must first produce, or have produced, a tone which satisfies his ear. The question then naturally arises—when he has secured the tone that satisfies his ear of what value beyond satisfying his curiosity is a physical analysis? A tone is something to hear, and when it satisfies the ear that *knows*, that in itself is unmistakable evidence that it is rightly produced.

If this scientific knowledge of tone is necessary to artistic singing, then every great artist in the world is unscientific, because not one of them makes any use whatsoever of it in his singing.

No amount of scientific training will enable one to tell what is good and what is bad in tone quality. Any vocal organ is capable of producing a large variety of tone qualities. Will scientific knowledge enable one to tell which is good or which is best? Only a long process of mental training will do this. Will a knowledge of vocal mechanism enable one to tell what kind of tone a particular vocal organ will produce? No. It will not teach him a single one of the innumerable things a voice teacher must know in order to do his work well.

The scientist bases his conclusions on what he can learn about matter, but this can be of no value to him in determining what is beautiful. This is dependent entirely on the development of the æsthetic sense.

No. All the scientific knowledge one may acquire is no guaranty of success as a teacher, but is rather in the nature of a hindrance, because it is almost certain to lead him into mechanical ways of doing things. All of the processes of singing must be automatic before they are right for artistic purposes, and it is a well established fact that the more the teacher tries to use his scientific information in teaching the less of an artist he becomes.

Could it be possible that a beautiful tone could be produced contrary to the laws of science? It would be an extraordinary mind that would argue in the affirmative.

The most beautiful tone is the most perfectly produced, whether the singer knows anything of vocal mechanism or not. In such a tone there is no consciousness of mechanics or scientific laws. The vocal mechanism is responding automatically to the highest law in the universe—the law of beauty, which is not physical but metaphysical. The most scientific thing possible is a beautiful idea perfectly expressed, because a thing inherently beautiful is eternally true; hence, it is pure science.

Every tone of the human voice is the expression of life, of an idea, a feeling, an emotion, and unless there is interference somewhere the vocal mechanism responds automatically. He who by experiment or reading has learned the action of the vocal mechanism, and attempts to make his pupil control every part of it by direct effort may imagine he is doing something scientific, but he is not; he is only doing a mechanical thing in an unnecessarily stupid and clumsy way.

Is it a scientific act to tell a pupil to hold his tongue down, as one teacher argued recently? Is a teacher calling into action the invariable laws of science when he tells his pupil to drive the tone up through the head, raise the soft palate, groove the tongue, and make the diaphragm rigid? No. He is only doing a mechanical thing badly for want of a better way. It is no more scientific than kicking the cat out of the way if she gets under your feet.

Any one who has learned the elements of psychology or philosophy knows that everything exists first as idea. The real universe is the one that exists in the mind of the creator. The real man is the part of him that thinks. To hold that the body thinks or acts is equivalent to believing that Gray's "Elegy" was in the pen with which the poet wrote.

To a natural scientist the only real thing is what he can see, therefore he bases his faith on what he conceives to be matter; but if we study the great ones—Oswald, Huxley, Grant Allen, and others—we find that they long ago reached the conclusion that there is no such thing as matter. According to Schopenhauer the world is idea, and this so-called material environment is thought objectifying itself.

Scientists and many vocal teachers, like the members of other professions, are not altogether immune to an attack of intellect, and at such times the thought that they are doing something scientific is particularly agreeable.

Of all forms of human activity artistic singing is the freest, most spontaneous, and lends itself least to mathematical rules. Why any one should wish to drag it down from its pinnacle and bind it with mechanical fetters can be explained only by the fact that those who give themselves up entirely to finding out how a thing is done usually know little about the thing itself.

The *real* teacher of singing does not look at the voice, he *listens* to it. Hence it follows logically that the most important part of a teacher's training should be learning how to listen. The moment the pupil sings a tone there enters an element entirely apart from science, namely, *how does it sound?* Scientific study will not even tell whether the tone is too bright or too sombre. To say that every one knows a good tone when he hears it is far from the truth. If it were true there would be much less bad voice teaching than there is. Furthermore, it requires more time to develop a reliable taste in tone quality than it does to learn all about vocal mechanism. The development of taste is a problem in psychology, not physics, and for this reason it seems intangible to many. Nevertheless, it is a fact that all that is of value to the teacher must be learned through the ear. If the teacher's ear does not tell him everything about the tone, good and bad, then heaven help the student.

The only study of science that can benefit one is the study of causation, and causation cannot be cognized by the physical senses. We never see, hear, feel, taste, or smell cause. What we see or hear is effect. Causation is mental. Natural science is dealing with phenomena, with effect, not cause. A regular recurrence of phenomena may establish a so-called natural law, but the law is that which caused the phenomena. "Law is force," says Hegel, and it is therefore mental. We are told that the law of the earth is its path around the sun. This is not true. The law of the earth is the mind that makes it revolve around the sun. If we would learn the nature, activity, and cause of anything we must look for it in *mind*, not matter. For this reason the process of voice production is *psychologic*, not physiologic. When a pupil sings, what we hear is *effect*, not cause. If he is doing all manner of unnecessary things with lips, tongue, larynx, etc., what we see is effect and the cause is in wrong mental concepts. The thing which caused the tone is *mental*, the force which produced it is *mental*, and the means by which we know whether it is good or bad is *mental*.

Of this we may be sure, that the tone the pupil sings will not be better than the one he has in mind.

A tone exists first as a mental concept, and the quality of the mental concept determines the quality of the tone.

If there be such a thing as scientific voice production it will be found in the sense of what is inherently beautiful, and the scientific tone is one which will perfectly express a right idea or emotion, and in the nature of things there must be an appropriate tone for everything that may be legitimately expressed, for the idea carries with it the means of expression.

If we analyze the pure singing tone we shall find its elements are all mental. It has freedom (mental), power (mental), sympathy (mental). It may express love, joy, compassion, pity, fear, courage, sadness, all of which are states of mind. The only thing material is the medium through which these things are expressed. When I talk to a student it is his mind which hears me. Therefore if I would teach him to sing well I must develop certain habits of mind. Strictly speaking there is no such thing as a physical habit. A habit is unmistakably a mental trend.

But whence originated this so-called scientific voice training? That the old Italians knew nothing of it is well understood. They never saw the vocal cords in action, for the laryngoscope was not invented until the middle of the nineteenth century. They considered the process artistic rather than scientific. *How does it sound?* was their slogan. They had in mind the finished product, *beautiful tone,* and from the beginning they undertook to develop in the mind of the student a perfect tone concept. They learned from experience that as they succeeded in doing this and at the same time gained perfect freedom from interference and control of the breath, that the student began to produce the pure singing tone. This is the secret of the old Italian method, which so many claim to have discovered, but which never was lost to those teachers having the real artistic sense.

The artist always has in mind the *finished product.* The scientist tries to find out how it is done. The artist begins with the idea and works forward to its complete expression. The scientist begins with the physical mechanism and works backward toward the idea.

What is responsible for the change from the methods of the seventeenth and eighteenth centuries? It is safe to say that it was not started by the voice teachers.

Early in the nineteenth century an interesting thing happened. Why it happened at that particular time I do not pretend to explain. Perhaps it was the logical outcome of centuries of preparation. It does not matter. An era of invention began. The human mind became aggressively inquisitive. The desire to arrive at the ultimate of everything took possession of the race and still holds it. The world was filled with a great unrest. Previous to that time methods of living, production, transportation, etc., were little different from that of biblical times. People and nations lived much to themselves. They looked within for their inspiration, were not much troubled with world affairs, and developed their own national characteristics. But with the invention of the steamship, railway, telegraph, there came a marked change. These improved methods of communication brought all of the mentalities of the world together, and soon all habitable parts of the globe were in daily and hourly contact. The result of this was a mental fermentation which increased immeasurably the complexity of life, and the present exaggerated and abnormal condition of society is the outgrowth. Everything is in the melting pot. Art, literature, politics, and religion have suffered change.

Between 1809 and 1813 were born Mendelssohn, Chopin, Schumann, Liszt, and Wagner. These men are known as the founders of the modern romantic school of music. They grew up with the new civilization and could not do otherwise than reflect it in their music. That the new civilization was responsible for the new art there is no doubt whatever. The era of invention has resulted not only in new methods of education, but of destruction as well. The present world condition is the climax of the mental fermentation which has been in process for the greater part of the last century. If we study one phase of this, namely, music, we shall find that it, too, has been increasing in complexity, the marked examples of which are Strauss, Debussy, and Schoenberg, the last of which has well nigh created a world-wide musical war.

Since the era of scientific investigation began nothing has been able to escape it. The scrutinizing eye of the scientist has been fastened upon everything. With the invention of the laryngoscope the voice became a particularly interesting subject to the scientist, and to him rather than to the voice teachers must be given the credit of originating scientific voice teaching.

When the scientists began publishing the results of their investigations singing teachers at once became interested. The thing looked promising. It offered a method shorn of uncertainties. A method that brought everything under the operation of physical laws. A method that was invariable. A method that would operate in spite of the student's lack of musical intellignece. And finally a method that would enable them to lay to their soul the flattering unction of science.

True, it did not bother with the psychology of the matter. It said: "Do it so and so and a beautiful tone will result," because scientific laws eternally operating in the same way eternally produce the same results. What more could be asked? But when it came to bringing this invariable method in contact with mentalities that were anything but invariable the trouble began, and it has not yet ended.

The scientific method gave voice teachers something tangible, something they could see; whereas the development of tone concept, the artistic instinct, musical feeling, and musicianship had to do with things that to most of them were intangible and elusive.

No one doubts the honesty of the teachers who became obsessed with the scientific idea. To them it meant increased efficiency and accuracy, quicker results with less effort, and no failures, hence they broke with the old Italians, the basis of whose teaching was beautiful tone and beautiful singing. But in spite of the honesty of all those who followed the new way the results were calamitous. Voices without number were ruined. From the middle to the end of the nineteenth century the scientific idea was rampant, and during that period it is probable that the worst voice teaching in the history of the world was done.

Large numbers of people with neither musicianship nor musical instincts acquired a smattering of anatomy and a few mechanical rules and advertised themselves as teachers of scientific voice production. The great body of vocal students, anxious to learn to sing in the shortest possible time, and having no way of telling the genuine from the spurious except by trying it, fell an easy prey, and the amount of vocal damage and disaster visited upon singers in the name of science was beyond calculation.

I offer no objection to the work of the scientific investigator. It is a work of intense interest, and I have done more of it, I am sure, than most teachers. But I do object to the use they would have teachers make of such knowledge. It leads to direct control and a mechanical way of doing everything.

That the vocal cords respond automatically to the thought of *pitch* need not be argued. That part of the mechanism above the vocal cords which is responsible so largely for the color and quality of the tone must respond automatically to the thought of *tone quality*. This it will do unerringly if there is no resistance or interference.

The two great principles of voice production are *tone concept and freedom*. When these two principles have become automatically operative the difficulties of so-called voice placing disappear. The study of vocal mechanism bears the same relation to singing that piano making does to piano playing, which every one knows is no relation at all. The training of voices is simple when one is big enough to see that it is psychological, but if he never gets beyond tinkering with the vocal instrument his path is destined to be thorny.

Fortunately for the singing world the reaction has begun. Slowly but surely we are returning to a saner condition of mind.

Every year adds to the number of those who recognize singing as an art, whose vision is clear enough to see that the work of the scientific investigator should be confined to the laboratory, and that the basic principle of singing is *freedom in the expression of the beautiful,* and that the less there is of the mechanical in the process the better.